

RECLAMATION

Managing Water in the West

Water Conservation

How can we better serve you?

Please provide information on the type of assistance that the Water Conservation Team could provide that would be of value to your organization.

Thank you

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The California Irrigation Institute Presents: “Warming to the Future: Impacts on Irrigation.”



The California Irrigation Institute (CII), the state's oldest independent forum on irrigation water, is hosting its 46th annual conference, “Warming to the Future: Impacts on Irrigation” on January 31 and February 1, 2008. This year's conference is being held in Sacramento, California at the Red Lion Inn.

The 46th annual conference will provide a unique opportunity for agricultural and urban water users to discuss climate change, the impacts on irrigation, and solutions for dealing with a changing water supply. Lester Snow, Director of the California Department of Water Resources, will commence the activities, followed by a wide array of dynamic speakers including federal and state officials, water district personnel, university extension representatives, private consultants, engineers, and farmers. Special guest, William Patzert of NASA, Jet Propulsion Laboratories, will present a luncheon talk titled “Climate Change Impacts on Water Supply.”

CII has undergone some exciting changes in the past year, which will reflect in the 2008 program. CII's Board of Directors partnered with the Ag Water Management Council to assume administrative duties. CII has also expanded its urban forum to include a second urban session on Day 2 of the conference. Other highlights include an exhibitor's reception on January 31st which is being hosted by Hatcher Winery, Lavender Ridge Vineyards, and Jack Russell Farm Brewing Company.

Anyone interested in California water supply and irrigation is invited to attend. Please visit www.caii.org for more information. A complete program is posted on CII's website.

The Water Conservation Field Services Program: A Fundamental Grant Program

By Sheri Looper

The Water Conservation Field Services Program (WCFSP) debuted in 1997, with a creation history directly linked to the Reclamation Reform Act of 1982 (RRA). The intent of the WCFSP was to improve the implementation of the water conservation provisions outlined in RRA, Section 210 which stated that Reclamation was to “encourage the full consideration and incorporation of prudent and responsible water conservation measures in the operations of non-federal recipients of irrigation water from Federal Reclamation projects...” In addition, the act required all Agricultural and Municipal and Industrial water suppliers that entered into contracts pursuant to Federal Reclamation law or the Water Supply Act of 1958 to provide Water Management Plans (Plans). The completion of these Plans became a provision in the water supply contracts and each Plan had to include the following:

- Definite goals
- Water conservation measures
- Time schedule for meeting objectives

In the early 1990's, environmental advocacy groups expressed concern with Reclamation's implementation of RRA's water conservation provision. In 1996, following a settlement agreement, the Commissioner of Reclamation issued a new Reclamation-wide policy on water conservation planning. To ensure efficient use of Federal water, Reclamation was to work directly with individual districts to develop water conservation plans and provide technical and/or financial assistance in the implementation of water conservation methods and new technology.

A key element of this plan was the initiation of the WCFSP, designed to encourage and support water conservation as an incentive based program for financial and technical assistance. The goals of the WCFSP were outlined as follows:

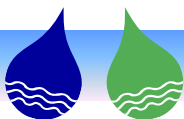
1. Ensure development and implementation of high quality water conservation plans.
 2. Demonstrate innovative technologies that conserve water.
- Implement effective water conservation measures throughout the 17 Reclamation States and advance improved water management on a regional and statewide basis.

Since the program's inception, the Mid-Pacific Region has awarded over **350 WCFSP** grants primarily to Reclamation water contractors for projects such as canal lining and piping, irrigation scheduling, system delivery, system modernization, residential rebate programs, education, and measurement. Including the participants contributions, the WCFSP has resulted in over **\$21.2 million** invested in water conservation projects in the Mid-Pacific Region alone.

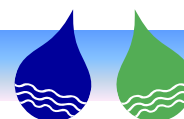
Over the years, the WCFSP has changed to accommodate the more challenging societal pressures on our limited water supplies. At the WCFSP inception, Reclamation awarded grants on a non-competitive basis. However, new Federal requirements became effective in Fiscal Year 2005, which required that the WCFSP be based on a competitive

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“Other” Benefits of Water Conservation



What's SCADA Worth To You?

By Dennis Perkins

The question of cost versus benefit regarding conservation measures is a common issue that water contractors must address. Many contractors have asked; “What are the benefits of a Supervisory Control and Data Acquisition (SCADA) system?” We (the water conservation staff) wish we knew exactly how the SCADA program would benefit each specific district, but the fact is, while many districts will have similar experiences, every district will derive unique benefits.

LABOR

District managers have reported that SCADA implementation has significantly improved their districts operations and maintenance programs. While I haven't heard of any layoffs as a result of the automation, I have heard that many managers are seeing progress on projects that have sat undone for a long time. So, improvements in time efficiency can be used to reduce the back log of jobs that have remained undone. It is reasonable that if there's someone not having to spend the day running out to the pumping plant, or up and down the supply ditch, or spending the night trying to figure out why farmer X isn't getting water, there will be some available time to handle the back-log of maintenance issues. Maintenance scheduled on operation hours and tracked on SCADA can improve reliability and operational efficiency and enable pro-active efforts to make repairs before issues become critical. So, the not so short answer is that SCADA can save labor, overtime, vehicle mileage, and wear on vehicles.

ENERGY

SCADA related energy savings (pumping) as high as 10-30% have been identified in some districts. One district manager reported that the historical method of maintaining water levels under variable flows in the system was to pump a little more water than needed, adjusting flows when convenient, and channeling the spill back into the source. For this district the kilowatt savings from the SCADA project based on the previous five years of records was between 20-30%. The results may vary broadly, but new sensors and control algorithms along with variable frequency drive pumps have made significant power consumption

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Environmental Benefits of Water Conservation

By Kevin Clancy

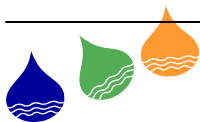
Despite normally abundant mountain snowfall, California's semi-arid climate makes water the state's most precious resource. During the past half of a century, societal demands for municipal water supplies, irrigated agriculture, industrial water use, flood control, hydropower generation, and navigation have resulted in extensive modification of river flows. Many species have been adversely impacted by changes in water quality, water temperature, and obstruction of historic migration routes. The numbers of threatened or endangered species that depend on healthy ecosystems are indicators that an innovative approach to managing water resources is needed while maintaining or improving project benefits. Water conservation is a key component in managing our water resources.

The benefits of water conservation extend beyond improving the reliability of water supplies, reducing the impacts of droughts, and postponing or possibly eliminating the need for additional storage facilities. Each drop of water conserved has compounding benefits throughout the water-use cycle. Water conservation also benefits the environment by making water available for other uses such as maintaining healthy ecosystems and reducing greenhouse gas emissions. Improved technologies, adoption of best management practices, and educational programs are creating a greater public awareness, and behavioral changes that are primarily responsible for water savings.

Population growth has placed an unprecedented demand on water supplies producing water shortages and will continue to do so in the future. Changes in municipal water use through conservation practices have resulted in substantial water savings that has the potential to benefit the environment. High efficient appliances can significantly reduce water consumption, making more water available to support environmental flows. These instream flows help to restore fish migration, reduce the loss of river channels, maintain riparian habitat, and reduce fluctuations in water temperature.

(Con't on page 4)



**SCADA (con't from page 3)**


and flow control improvements in many districts.

WATER

Many of the districts in California are working with water contracts that fall short of meeting their crop water needs. SCADA provides significant water management benefits to these districts as a result of more consistent water level, faster response times, reduced time requirements for advanced notice for water orders and shut-off's, fewer delivery problems, and when water is delivered with a consistent head, farmers are able to control their irrigations with greater accuracy and reliability. This eliminates the occasional extra or extended irrigation due to variable flow rate water deliveries. Making that extra irrigation unnecessary means water savings. Reduced spill may save water allowing districts to stretch their limited water resources or reduce water purchase costs.

MANAGEMENT

Managers, staff and board members of districts that have implemented SCADA have expressed consistent satisfaction with the availability of the new information at their disposal. This information includes diversion flows and quantities, pump status and hours (for maintenance), water head levels, gate levels or status, canal and reservoir elevations and intelligent alarming. This information, combined with easier control protocols, allows districts to experience levels of management that makes them wonder how they operated before SCADA. It has become usual for the farmers to notice the improved level consistency and comment that the manager should continue their new methods.


SCADA is just one part of a modernization package. The benefits always depend on the existing condition and management of your district, but nearly always return large benefits from several viewpoints. A word of caution though; once you start down that path, it works so well, you'll probably find yourself continuing to modernize. Other modernization programs include, canal lining or piping, canal level and diversion control systems, pump efficiency improvements including Variable Frequency Drives, improved measurement and monitoring, on-farm irrigation system upgrade programs, improved information management systems (including GIS) and data collection systems. 

Environmental Benefits (con't from page 3)

The over-watering of lawns, plants, and trees produces urban runoff. This runoff is high in nutrients such as nitrates and phosphorous, and when this water runs down the street it accrues additional chemicals, oils, and trash that flow into the streams resulting in a degradation of water quality. Poor water quality can lead to less efficient ecosystems that affect aquatic life and can introduce invasive, non-native species. Improvements to irrigation systems and creating low water use landscapes will reduce these impacts and benefit the environment.

The agriculture sector has also achieved water savings from conservation efforts. Changes in metering and volumetric pricing, irrigation practices, and modernized conveyance infrastructure have reduced water usage, thus reducing soil erosion, pesticide, pathogen, and other biological and chemical run-off from agriculture lands. As a result, natural resources, water quality of ecosystems, and wildlife habitat have improved.

In addition, water conservation activities can save significant amounts of energy. According to a report published by the Association of California Water Agencies, conveying, treating, and distributing water consumes approximately eight percent of California's total energy use. A reduction in these activities will reduce greenhouse gases and emissions, resulting in cleaner air.

We must continue to actively seek plausible solutions to manage for competitive demands on our limited water resources. Water conservation practices, such as more efficient appliances, behavioral changes, and changes in irrigation practices can reduce water demand by as much as a third, which can lead to better water quality, enhance instream flows, and improve air quality. In the end, water conservation can help balance human water needs with environmental needs. 





Noteworthy News Items

Technical Assistance Available!

The Mid-Pacific Region's Water Conservation Team will host a technical assistance room at the 2008 Water Users Conference in Reno, Nevada.

Assistance is available in numerous areas including, but not limited to the following:

Financial Application Information
Water Management Planning Assistance
Drought Assistance

Please contact your Area Office Water Conservation Specialist for more details. Water Conservation will also have an exhibitor's booth at the Conference. We look forward to seeing you there.

2008 CALFED Water Use Efficiency Grants

Reclamation is collaborating with the Department of Water Resources for the 2008 Water Use Efficiency Grants. Applicants can now apply for both State and Federal funds with one application. The Proposal Solicitation Package (PSP) is due to release in January 2008. Federal assistance can be used for the non-locally cost effective portions of a project and will require a 50% cost-share. Reclamation can fund up to \$300,000. Please visit www.usbr.gov/mp/watershare for PSP information.

Water Conservation Field Services Program: Financial Assistance

Reclamation is now accepting applications for the 2008 Water Conservation Field Services Program. A 50% cost-share is required with a maximum award of \$50,000. Applications are due on February 5, 2008. Please visit www.usbr.gov/mp/watershare for more information.

Water 2025 Challenge Grant Program Requests for applications coming soon!

The Reclamation-wide Challenge Grant Program provides a 50% cost share funding to irrigation and water districts for projects focused on water conservation, efficiency, and water marketing. Please visit www.doi.gov/water2025 for up to date information on the release of the 2008 Request for Applications. Expected release date is in January.

WCFSP (Con't from page 2)

process and advertised on the federal grants.gov website. The WCFSP underwent further change in Fiscal Year 2007 to increase the maximum federal cost share funds per recipient from \$25,000 to \$50,000. Also, in an effort to assess cost effectiveness and better target future program funding, participants are now required to include performance measures in order to quantify project benefits, i.e. acre feet of water conserved or better managed as a result of the project.

The WCFSP has been instrumental in transforming water conservation efforts throughout the Central Valley. This program will continue to be of major importance to help decrease water demands and improve water supply reliability to meet growing environmental, agricultural, and urban needs. The WCFSP is a strong catalyst for the implementation of water conservation measures and ensures that water conservation remains a priority in the arid West where every drop of water truly counts. 💧



Calendar of Events

Flow Measurement and Canal Operations for Canal Systems Operators

Presented by Dr. Stuart W. Styles, CalPoly ITRC
CSU, Chico Irrigation Training Facility
January 15, 2008

<http://www.csuchicoag.org/SCADA/Workshops/Workshops.asp>

Improving Energy Efficiency in Drip and Micro Irrigation

Presented by Dr. Stuart W. Styles, CalPoly ITRC and Durham Pump
CSU, Chico Irrigation Training Facility
January 16, 2008

<http://www.csuchicoag.org/SCADA/Workshops/Workshops.asp>

Propeller Meter Repair

Presented by TechnoFlo Systems
CSU, Chico Irrigation Training Facility
March 7, 2008

<http://www.csuchicoag.org/SCADA/Workshops/Workshops.asp>

2008 Water Users Conference

El Dorado Hotel and Casino
Reno, Nevada
January 23-25, 2008

California Irrigation Institute's Annual Conference: Warming to the Future

Red Lion Hotel
Sacramento, CA
January 31- February 1, 2008
<http://www.caii.org>

Irrigation District School of Irrigation

ITRC, CalPoly,
San Luis Obispo, CA
January 29 - Flow Measurement: General and Pipelines
January 30 - Flow Measurement: Canals
January 31 - Canal Operation
February 19-20 - SCADA I
February 21-22 - SCADA II
March 12 - Pumps I
March 13-14 - Pumps II
<http://www.itrc.org>



The Mid-Pacific Region of Reclamation Announces a Funding Opportunity for Education Grants

The Bureau of Reclamation will be requesting proposals from educational institutions and organizations located in the Mid-Pacific Region to provide water conservation education to the general public within the Central Valley Project (CVP) service area. The purpose is to increase public awareness of efficient water use, in order to reduce competition for the water resources and thus ease the strain on the limited water supply, resulting in increased benefits to the human population, fish and wildlife.

The solicitation package is expected to be released through www.grants.gov in late December or early January and close February 7, 2008. The grants will be up to \$50,000 per year, with a two-year maximum. For updated information on the release date, please visit <http://www.usbr.gov/mp/watershare/>.



**Teach the children,
change the future**

**The American River Water
Education Center
(ARWEC)
in Folsom**

**Specializing in water conservation field
trips for elementary schools**

Water Districts and Cities:

Give your young customers a fun and memorable educational experience in water conservation.

Sponsor a field trip to ARWEC.

Many schools cannot afford the cost of the bus for their field trips. Sponsored school buses enable a day of fun as these young water users learn the importance of water and water conservation.



Call your local school or call us at 916 989 7275. Visit us at www.usbr.gov/mp/arwec



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Bureau of Reclamation